

CLAIMS

We claim:

1. A polyester composition comprising:
 - I. a polyester consisting essentially of:
 - (i) diacid residues consisting essentially of terephthalic residues; and
 - (ii) diol residues consisting essentially of ethylene glycol residues, about 1 to 4 mole percent diethylene glycol (DEG) residues, and about 1 to 4 mole percent 1,4-cyclohexanedimethanol (CHDM) residues; and having an inherent viscosity (IhV, in dl/g) which satisfies the equations $IhV-X-Y = 0.74$ to 0.80 , wherein X is the mole fraction of CHDM and Y is the mole fraction of DEG; and
 - II. at least one reheat enhancing aid in an amount sufficient to provide between about 5 and 35% reheat improvement.
2. The composition of Claim 1 wherein polyester component I consists essentially of:
 - (i) diacid residues consisting essentially of terephthalic residues; and
 - (ii) diol residues consisting essentially of about 94.5 to 97.5 mole percent ethylene glycol residues, about 1.5 to 3 mole percent DEG residues, and about 1 to 2.5 mole percent CHDM residues; and has an inherent viscosity (IhV, in dl/g) which satisfies the equations $IhV-X-Y = 0.76$ to 0.80 , wherein X is the mole fraction of CHDM and Y is the mole fraction of DEG.
3. The composition of Claim 2 wherein said reheat enhancing aid is selected from the group consisting of black and gray body absorbers and near infrared absorbing dyes.
4. The composition of Claim 3 wherein said reheat enhancing aid is present in an amount of about 5 to 150 ppm.

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5. The composition of Claim 4 wherein said reheat enhancing aid is present in an amount of about 10 to 100 ppm.

6. The composition of Claim 1 wherein said reheat enhancing aid is selected from the group consisting of carbon black, iron oxide, antimony, tin, copper, silver, gold, palladium, platinum or a mixture thereof.

7. The composition of Claim 1 wherein said reheat enhancing aid is selected from the group consisting of carbon black, black iron oxide and antimony metal.

8. A polyester composition comprising:

I. a polyester consisting essentially of:

- (i) diacid residues consisting essentially of terephthalic residues; and
- (ii) diol residues consisting essentially of about 94.5 to 97.5 mole percent ethylene glycol residues, about 1.5 to 3 mole percent diethylene glycol (DEG) residues, and about 1 to 2.5 mole percent 1,4-cyclohexanedimethanol (CHDM) residues;

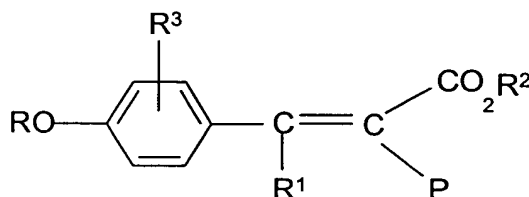
and has an inherent viscosity (IhV, in dl/g) which satisfies the equations $IhV - X - Y = 0.76$ to 0.80 , wherein X is the mole fraction of CHDM and Y is the mole fraction of DEG; and

II. about 5 to 150 ppm of at least one reheat enhancing aid selected from carbon black, black iron oxide and antimony metal.

9. The composition of Claim 1 further comprising at least one UV absorbing compound which is thermally stable at polyester processing temperatures and provides less than about 20% transmittance of UV light having a wavelength of 370 nm through a bottle wall 12 mils thick.

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10. The composition of Claim 9 wherein said UV absorbing compound has formula I:



wherein:

R is hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, cycloalkyl, substituted cycloalkyl or alkenyl;

R¹ is hydrogen, or a group such as alkyl, aryl, or cycloalkyl, all of which groups may be substituted;

R² is any radical selected from the group consisting of hydrogen, alkyl, substituted alkyl, allyl, cycloalkyl or aryl;

R³ is hydrogen or 1-3 substituents selected from alkyl, substituted alkyl, alkoxy, substituted alkoxy and halogen, and

P is cyano, or a group such as carbamyl, aryl, alkylsulfonyl, arylsulfonyl, heterocyclic, alkanoyl, or aroyl, all of which groups may be substituted.

11. The composition of Claim 10 wherein R² is hydrogen, alkyl and hydroxyalkyl; R is selected from hydrogen or an alkyl linking group; and P is cyano.

12. The composition of Claim 10 where said UV absorbing compound comprises at least two compounds of formula I.

13. The composition of Claim 10 wherein said UV absorbing compound is present in an amount between 1 to about 5000 ppm by weight.

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14. The composition of Claim 10 wherein said UV absorbing compound is present in an amount between about 2 ppm to about 1,500 ppm by weight.

15. The composition of Claim 10 wherein said UV absorbing compound is present in an amount between about 10 and about 700 ppm by weight.

16. A process for forming a heat-set container which comprises the steps of:

- (1) injection molding the polyester composition of Claim 1 to form a container preform;
- (2) reheating or temperature conditioning the preform; and
- (3) stretch blow molding the preform of step (2) into a mold heated at a temperature of about 90 to 160°C.

17. The process of Claim 16 wherein step (3) comprises stretch blow molding the preform of step (2) into a mold heated at a temperature of about 100 to 140°C.

18. A heat set container formed from the composition of Claim 1.

19. A heat set container formed from the composition of Claim 5.

20. A process for forming a heat-set container which comprises the steps of:

- (1) injection molding the polyester composition of Claim 8 to form a container preform;
- (2) reheating the preform; and
- (3) stretch blow molding the preform of step (2) into a mold heated at a temperature of about 100 to 140°C.

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